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TAXONOMIC NOTES CONCERNING PHLEBOTOMUS OSORNOI RISTORCELLI AND VAN TY, 1941 (DIPTERA, PSYCHODIDAE)

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Among a collection of *Phlebotomus* received from Dr. J. A. Montoya Ochoa were six females and one male of *P. osornoi* Ristorcelli and Van Ty, 1941, collected at Tuquerres, Colombia, on August 15, 1944. As the male of this species has not been known, a description is presented below, as well as additional descriptive notes concerning the female.

Phlebotomus osornoi, Ristorcelli and Van Ty, 1941.

MALE—Head: Length from vertex to clypeus 344 microns; clypeus 165 microns, epipharynx 394 microns. Length of palpal segments (fig. 3) in microns: I, 49; II, 165; III, 245; IV, 120; V, 410. Palpal formula I, 4, 2, 3, 5. Length of antennal segments in microns: III, 623; IV, 295; V, 262; VI, 246; VII, 229; VIII, 213; IX, 180; X, 164; XI, 148; XII, 140; XIII, 131; XIV, 82; XV, 82; XVI, 66. Geniculate spines of antenna without basal spur; situated about one-third the distance from the apex on segment III, and slightly above the base on succeeding segments; reaching to middle of segment V, shorter on other segments. III/E = 1.6.

Thorax: Length of scutum and scutellum 705 microns. Wing (fig. 1) measurements in microns: length, 3330; width, 1040; alpha, 915; beta, 416, gamma, 499; delta, 250. Alpha/beta = 2.2; alpha/gamma = 1.8; alpha/delta = 3.7. Femora of hind legs without a row of special setae or spines. Leg measurements in microns: Foreleg: femur, 1290; tibia, 1870; tarsus I, 1205; II, 460; III, 310; IV, 250; V, 125. Midleg: femur, 1165; tibia, 2165; tarsus I, 1400; II, 500; III, 333; IV, 250; V, 125. Hindleg: femur, 1290; tibia, 2580; tarsus I, 1620; II, 580; III, 375; IV, 290; V, 125.

Abdomen: Length without genitalia, 2290 microns. Genitalia (fig. 2): basal segment of upper clasper 525 microns in length; with a dense tuft of many long setae at the base and a short row of long, fine setae along the inner margin above the basal tuft. Distal segment of upper clasper

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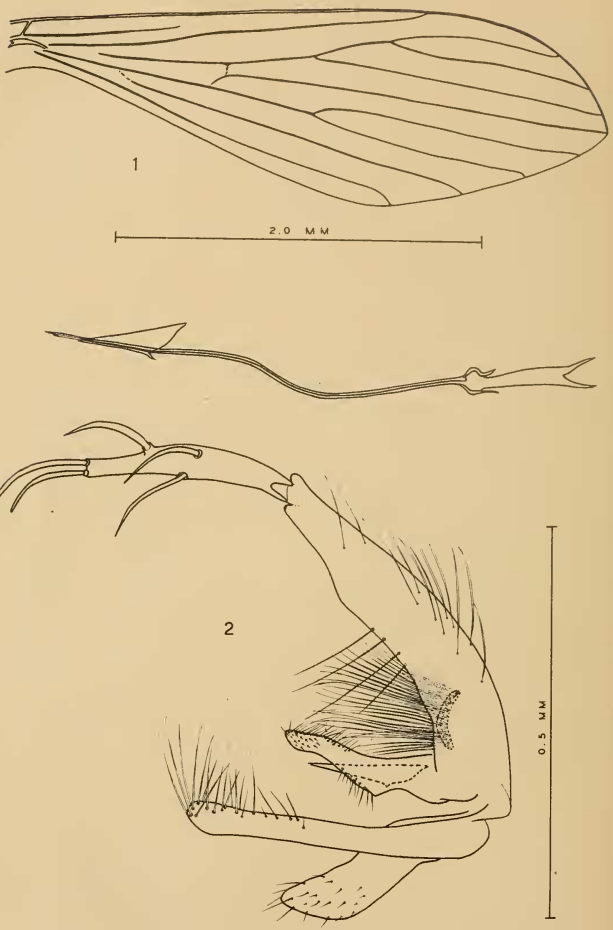

Plate 15. Fig. 1—*Phlebotomus osornoi*. Wing of male. Fig. 2—*P. osornoi*. Male genitalia.

280 microns long; with five enlarged spines, two apical, two median, and one between the apical and median spines. Median clasper 260 microns long; unarmed, simple; the upper surface of the distal half with a patch of short posteriorly-directed setae; lower margin angled before the middle, a small patch of fine setae beyond the angle. Lower clasper 390 microns in length, unarmed, but with some long setae at apex. Spicular apparatus: genital pump 165 microns in length; spicules 525 microns in length, ending in a simple blunt point.

FEMALE. Agrees with the description of Ristorcelli and Van Ty. Average lengths in microns of the palpal segments of three females: I, 63; II, 225; III, 265; IV, 160; V, 435. Spermatheca (figs. 4 and 5) 32-48 microns in length, with 12-16 irregular rings; the head narrow, tufted with fine hairs. Individual ducts 160-175 microns in length; common duct very short, 20 microns in length.

Taxonomic Discussion

Ristorcelli and Van Ty note that *osornoi* is most closely related to *P. intermedius* on one hand, and to *verrucarum*, *noguchii*, and *peruensis* on the other. The female described by these authors lacked the fourth and fifth palpal segments. The present description shows *osornoi* to have a long palp, whereas in *intermedius* palpal segment V is shorter than III. The ringed spermatheca separates *osornoi* from *verrucarum* and presumably from *peruensis*, since Shannon (1929) states that the spermatheca of the latter is similar to that of *verrucarum*. *P. osornoi* females possess several characters in common with the species listed below: a long palp with segment V longer than III; bucco-pharynx with four horizontal teeth; hind femur unarmed; and spermatheca ringed. The related species are as follows:

P. amarali Barretto and Couthinho, 1940
P. bourrouli Barretto and Coutinho, 1941
P. fluviatilis Floch and Abonnenc, 1944
P. gomezi Nitzulescu, 1931
P. japignyi Floch and Abonnenc, 1944
P. lanei Barretto and Coutinho, 1941
P. noguchii Shannon, 1929
P. oswaldoi Mangabeira, 1942
P. rorotaensis Floch and Abonnenc, 1944
P. stewarti Mangabeira and Galindo, 1944
P. suis Rozeboom, 1940

The most obvious difference between these species and *osornoi* lies in the shape of the spermatheca, which has the distal ring greatly enlarged in all these species except *bourrouli*, *fluviatilis*, and *noguchii*. The short individual ducts as well as the structure of the spermatheca of *bourrouli* readily

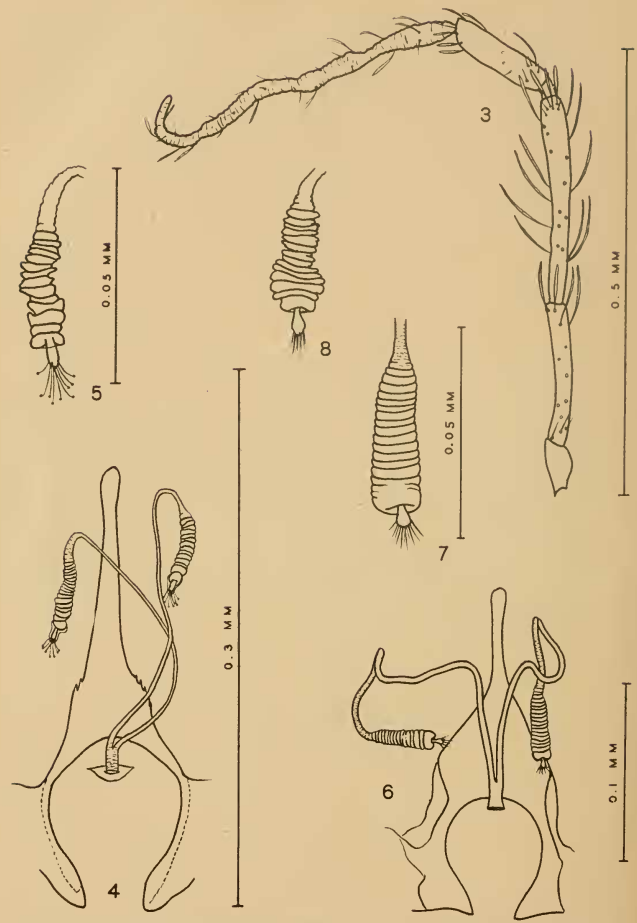

Plate 16. Fig. 3—*Phlebotomus osornoi.* Palp of male. Fig. 4—*P. osornoi.* Spermathecae and genital fork. Fig. 5—*P. osornoi* Spermatheca. Fig. 6—*Phlebotomus noguchii.* Spermathecae and genital fork. Fig. 7 *P. noguchii* Spermatheca. Fig. 8—*P. noguchii.* Spermatheca.

distinguish that species. The description of the spermatheca of *fluviatilis* given by Floch and Abonnenc (1944) shows some resemblance to that of *osornoi*, except that in the former it is larger (78 microns), the rings are more regular in shape, and the individual ducts are much longer (578 microns). Other differences are found in the wing ratios, and the relatively short palpal segment V of *fluviatilis*. *P. osornoi* appears to be most closely related to *P. noguchii*. Shannon (1929) stated that the spermatheca of this species was similar to the sac-like spermatheca of *verrucarum*. However, Hertig (1838, 1943) believed that the female described by Shannon as *noguchii* was actually one of *verrucarum*. Through an examination of Shannon's allotype female, and by dissections of females of *noguchii* collected and reared in Peru by Hertig and deposited in the U. S. National Museum, I am able to confirm Hertig's suspicion that Shannon's female is *verrucarum*. Hertig has redescribed the female of *noguchii*, with the exception of the spermatheca. These are illustrated in figures 6, 7, and 8. The spermatheca is 40-50 microns in length, and composed of 14-17 rings, the first largest; the rings may be regular in shape as in figure 7 or irregular as in figure 8. The individual ducts are 160-190 microns in length; the common duct is very short, about 20 microns in length. The ducts and the spermatheca with the irregular rings very closely resemble these structures in *osornoi*. There are other differences between females of *noguchii* and *osornoi* in the wing ratios and in the size and position of the eyes. The value of eye/eye-vertex is 1.6 in the *osornoi* female and 0.75 in *noguchii* (Hertig, 1943).

The male characters possessed in common with related species are the long palp, distal segment of upper clasper with five spines not arranged as in *Brumptomyia* (sens. str.), median clasper unarmed, and basal segment of upper clasper with a basal tuft. Related species are as follows:

P. noguchii Shannon, 1929. In *noguchii* the lower clasper extends well beyond the apex of the basal segment of the upper clasper, while in *osornoi* the lower is shorter than the basal segment of the upper. The length and shape of the median clasper differs markedly in the two species, and there are differences in the wing vein ratios, particularly in the value of alpha/delta, which is 6-12 in *noguchii* and only 3.7 in *osornoi*.

P. quinquefer Dyar, 1929. From Dyar's description the male of this species differs from *osornoi* in the shape of the median clasper and in the arrangement of the spines on the distal segment of the upper clasper.

P. rickardi Costa Lima, 1936, differs in the shape and length of the median clasper, in the position of the basal tuft, and in the palpal formula of 1, 2, 4, 3, 5.

P. rorotoensis Floch and Abonnenc, 1944, differs in the shape of the median clasper, the position of the basal tuft, in the palpal formula of 1, 2, 4, 3 5, and in the wing vein ratios.

P. stewarti Mangabeira and Galindo, 1944, and *P. vexator* Coquillett, 1907, differ especially in the small basal tuft consisting of only a few hairs.

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ON THAUMAPSYLLINAE, A NEW SUBFAMILY OF BAT FLEAS (SUCTORIA, ISCHNOPSYLLIDAE)

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The two known species of the Old World genus *Thaumapsylla* Rothschild, 1907, are in their build so exceptional among the bat fleas of the world (some 70 species), and the comparison of one with the other is so instructive, that these remarkable insects appear to me to be a very suitable subject for a short note written as an expression of my esteem and affection for the great entomologist to whom the June number of the Proceedings is dedicated.[1]

Until the discovery of *Thaumapsylla* the bat fleas were generally considered to be slender insects with a long head and a long thorax. As *Thaumapsylla breviceps* Rothschild, 1907 (on fruit-eating bats in Africa and the Oriental Region), has the proportionally shortest head of all known fleas and a very short pronotum (apart from the comb), our concept of a bat flea had to be changed, and a further change in the diagnosis

[1]Received too late for publication in the June issue honoring Dr. L. O. Howard.—Editor.